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November 2, 2021

Mr. Brian Conrath
Illinois Environmental Protection Agency
1021 N. Grand Avenue East
Springfield, IL 62702-4059

Subject: 2010300074 - Winnebago County
Response to U.S. EPA Comments
Source Area 7 2019-2020 Groundwater Management Zone Monitoring Report
Southeast Rockford Groundwater Contamination Superfund Site
Rockford, Winnebago County, Illinois
Superfund/Technical

Dear Mr. Conrath:

CDM Smith Inc. (CDM Smith) is pleased to submit the attached response to comments for the above-referenced report. The Source Area 7 2019-2020 Groundwater Management Zone Monitoring Report was submitted to Illinois EPA and U.S. EPA on July 1, 2020; U.S. EPA subsequently provided report comments to Illinois EPA on September 21, 2021; and most of the comments were subsequently discussed during a conference call with U.S. EPA on September 27, 2020. The minor comments that were provided separately by U.S. EPA will also be addressed in the revised report.

Finally, an Excel spreadsheet file is also attached to this response as mentioned in the response to U.S. EPA comment 11.

If you have any questions or comments, please contact me at (312) 780-7737.

Sincerely,



John C. Grabs, P.G., PMP
Senior Project Manager
CDM Smith, Inc.

cc: Jennifer Knoepfle, U.S. EPA

Attachments

Response to EPA Internal Deliberative Comments for Illinois EPA (For 9/27/21 Working Meeting)

**Source Area 7 2019-2020 Groundwater Management Zone Monitoring Report
Southeast Rockford Groundwater Contamination Superfund Site, June 2021**

1. Introduction

- a) Include how SA 7 is part of the CERCLA/Superfund and define roles of EPA and IEPA.

Response: *The following text will be added to Section 1 of the report. "Area 7 was identified as a primary source area for the SERGC during the Operable Unit 2 (OU2) remedial investigation as documented in the OU2 Record of Decision (ROD) (U.S. EPA 1995). The SERGC site is a state-lead, federally funded Superfund site (Illinois ID No. 2010300074, CERCLIS ID No. ILD981000417)."*

- b) Include the CSM in the Intro, so the reader understands and can verify the findings from this report. It is suggested to either include a CSM subsection or include the CSM as an Appendix and that can be updated when the CSM evolves (figure(s) + text). This includes information about the "uppermost aquifer". Are there multiple aquifers and what are their properties?

Response: *The CSM for Area 7 will be included as an appendix to the 2019-2020 report and will include pertinent discussion and figures. This appendix will be referenced throughout the report where the information may be helpful to the reader. In addition, a site description section that includes a brief discussion of the site geology has been added to Section 1.*

- c) Include the overall sampling and reporting schedule goals - you describe what was done in 2019 and 2020 - and from that the reader can assume that there is quarterly sampling, with monthly in/effluent sampling - and 1 annual report - but that should be specifically stated in the report (and cited as you have done in the UFP-QAPP); Is the intent 4 quarters of sampling and submission of an annual report, and is this the plan for the foreseeable future years? <https://semspub.epa.gov/work/HQ/500024623.pdf>

Response: *The following text will be added to Section 1.0. "As specified in the QAPP/SAP (CDM Smith 2021) and GMZ application (CDM Smith 2021), quarterly sampling of monitoring wells and groundwater extraction wells will be conducted for at least the first five years of system operation (i.e., through 2025). Monthly sampling of system influent and effluent was conducted during the first year of system operation but will be quarterly from then on through 2025. However, the frequency of sampling events will be evaluated as needed and may be changed if conditions warrant. GMZ monitoring reports will be prepared and submitted annually to document the quarterly sampling events.*

2. Global - Include citations for ROD, ESD, and other deliverables (UFP-QAPP, remedial action report, 2007 pilot study test, etc.) called out in the report and include in a Reference Section.

Response: *The 2019-2020 GMZ Report will be revised to include this information.*

3. Include information about the discharge permits in report. (Do we need to include ROD info and latest 12/30/2020 letter Re: Discharge Limits)?

Response: *The following text will be added to Section 1.2. "As discussed in the GMZ application (CDM Smith 2021), permits are not required for this remedial action. However, this remedial action is required to meet the substantive technical requirements of any permit applications as if a permit were required."*

The OU3 ROD is available online through EPA's website and the December 30, 2020, revised discharge standards letter is available from both agencies. However, the text in the second paragraph of Section 3.4 has been expanded to better explain the genesis of the current discharge limits.

4. Is there/will there be an annual O&M Report? Is there an O&M Plan? This report has some elements of an O&M Report. (What does SSC or ROD indicate)?

Response: *At this time there is no O&M Report planned as it is not a component of the ROD or SSC for Area 7. The current GMZ report and future reports will include discussions of unforeseen O&M-related events if they significantly impact the controls implemented as part of the GMZ. EPA and Illinois EPA will have ongoing communication and meetings to discuss future O&M reporting.*

5. The Term "Baseline" ...
 - a) Is the timeline - Baseline water levels - March 2019 (system off), O&F - Nov 2019, 1st quarterly event (system on) June 2020?

Response: *Correct, the text will be modified to clarify this.*

- b) Combining data that are months apart – is this appropriate/best practice to create "baseline"?

Response: *The text will be clarified to state that baseline data, other than for 1,4-dioxane, was collected prior to system start-up.*

- c) How were MW levels collected during EW/system operation? was the system turned off and for how long - is there an SOP to reference for this?

Response: *The text will be clarified to state the system and extraction wells are not turned off during water level collection.*

- d) 1,4Dx "baseline" event was at a different time – need to explicitly state this. Seems like this report should make that distinction early on, meaning "baseline" is for all VOCs except 1,4Dx. Also, the 1,4Dx baseline event would NOT be Dec 2019 because not enough preservative and no approved QAPP for this collection?

Response: *The text will be revised as follows "The compound 1,4-dioxane was not added to the list of monitored compounds until December 2019 as documented in the approved QAPP and SAP (CDM Smith 2019). Due to sample preservation issues during the December 2019 sampling event as described below, the baseline sampling event for 1,4-dioxane is defined as the June 2020 sampling event."*

6. Since one of the objectives of this GMZ Report is to assess the effectiveness of the soil and leachate treatment system - this pumping issue at EWG-003 should be specified in the tables for future tracking and evaluation.

Response: The 2019-2020 GMZ Report will be revised to include this information.

7. Results→Evaluation→Conclusion/Summary - If assessing the system, seems like the results section should do more than present the data - some assessment/evaluation presented prior to the conclusions? Maybe Section 4 is renamed as an "Evaluation" Section and then the Summary/Conclusion should be Section 5?

Response: Starting with the 2021 GMZ Report the sections will be revised and a "Data Assessment" section will be added.

8. Presentation of Data

- a) Need individual figures to show COCs>MCLs and depending on what is exceeding and number of exceedances, might need to have various figures to depict spatially what is occurring at the site based on ROD RGs. It is difficult to read from the text and without these types of figures to understand what/where/how much.

Response: Data presentation will be revised starting with the 2021 GMZ Report. Illinois EPA will schedule meetings with EPA to discuss data presentation in future reports. USGS suggested showing the "major stakeholders" in 2D based on a review of the data and assessment of what defines "major stakeholder COC".

- b) Include separate 1,4 dioxane figure.

Response: The 2019-2020 report will be revised to state that the treatment system was not designed to remediate 1,4 dioxane. 1, 4 dioxane will be included in separate figures and text starting with the 2021 GMZ annual report.

- c) A table should be added that summarizes the total VOC values for each well and each sampling event so that the values plotted on Figures 8-11 can be referenced in a table and verified. It would be useful to know the values of total VOCs at the clustered wells not just the maximum value that is shown on the maps.

Response: This table will be included in the revised 2019-2020 GMZ annual report.

9. Hot Spot

- a) It seems like the term "hot spot" is a historic term as referenced by the 2012 Final Remedial Action Completion Report for SA 7 Hot Spot Removal? If so, please define what the "hot spot" is as it can be different things for different sites. "Hot spot" also seems to refer to soil. This report occasionally refers to hotspots as groundwater (if not please clarify). Overall, we should discuss moving away from this terminology for groundwater and describe it as it is – high concentration area of XX (contaminant group or individual contaminant[s]), etc.

Response: "Source Area 7 Hot Spot Soil Removal" is the name given to the action that removed shallow, highly contaminated soil from the site through excavation and off-site disposal in 2011 as described in Section 1.1. The 2019-2020 GMZ Report will be revised to clarify this and references to highly contaminated groundwater will be changed to "areas of high VOC concentration."

- b) Also let's discuss the "limited" soil excavation of the hot spot in meeting (also needs to go in CSM).

Response: The 2019-2020 GMZ Report will be revised to include this information in the CSM. Please confirm if there is a need for any additional discussion regarding the Source Area 7 Hot Spot Soil Removal RA.

10. When discussing for the first time that sampling events were cancelled due to COVID-19 pandemic – please indicate that staff travel was restricted and not possible, and laboratories, hotels, and stores (to buy field materials) were closed during these months (and any CDM or IEPA restrictions?) and that is why the sampling events were cancelled.

Response: The text in Section 1.0 will be revised as follows. "CDM Smith company policy, in compliance with Centers for Disease Control guidelines, restricted travel and hotel stays. Analytical laboratories, stores, and hotels were severely limited in capacity due to the guidelines, The combination of these factors required that these three sampling events be cancelled. Given the long-term nature of the Area 7 remediation, it is very unlikely that the missing data from the cancelled sampling events will result in any impact to the monitoring program."

11. Bodine/CDM comparison – where is the evaluation? Need to include that. Also is this (similar to using City Data) included in the UFP-QAPP and approved?

Response: The report has been revised to specify that all second party data are informational only, were not used for any decision making, and are not to be used for any decision-making purpose in the future. In addition, Section 3.4.1 of the report has been deleted. The next QAPP revision will also address this issue. Notwithstanding the revised status of the Bodine data, the Bodine/CDM data comparison file accompanies this response.

12. Consider including a capture zone or area of influence on maps for the pumping on the figures?

Response: Starting with the 2021 GMZ Report, the potentiometric surface map will include water level data from the groundwater extraction wells.

13. Are all the sampling and analytical methods included in the UFP-QAPP? What about using secondary data (Bodine and City) is this outlined in the UFP-QAPP? Comparison of MDL and RLs, methods, data that are months apart...

Response: See the response to comment 10.

14. Consider adding a Deviations and Uncertainties section to this and future reports.
 - a) Issues with comparing differing data sets

Response: The Bodine and City of Rockford data are informational only and are not used in decision making for the GMZ. The text will be clarified to state this.

- b) Issues with comparing data from months apart

Response: The City of Rockford data are informational only and are not used in decision making for the GMZ. The text will be clarified to state this.

- c) High turbidity

Response: The 2019-2020 GMZ Report will be revised to include this information. In addition, the next QAPP revision will address this issue.

- d) High pH values (MW-148 and probably 1-5d, 106b,c, 112c

Response: The 2019-2020 GMZ Report will be revised to include this information.

- e) Large specific conductance range of \pm 50 mS/cm to represent stability?

Response: The 2019-2020 GMZ Report will be revised to include this information. In addition, the next QAPP revision will address this issue.

- f) City not using approved UFP-QAPP for 1,4 dioxane data as of 9/2021.

Response: The City of Rockford data are informational only and are not used in decision making for the GMZ. The text will be clarified to state this.

- g) Insufficient preservative in 1,4Dx bottles

Response: The 2019-2020 GMZ Report will be revised to include this information.

15. Section 3.1 Hydraulic Results - Paragraph 1

- a) Is this June 2020 and what does “several months” mean (e.g., 7 months not several)? Also please clarify this first introductory paragraph regarding the GW collection order/dates and system on/off. This paragraph and those that follow are confusing to the reader until you read the whole section.

Response: The text in Section 3.1 will be revised as follows “The baseline water levels were measured on March 26, 2019, prior to treatment system startup at 23 GMZ monitoring wells and four City of Rockford wells, as discussed in Section 2.1. No part of the groundwater extraction and treatment system was operational during this baseline event...”

“Quarterly groundwater elevations were measured in June 2020 during the second quarterly sampling event. This event was conducted after the treatment and containment system had been operational and functional for seven months to allow the groundwater regime to stabilize. The treatment system was actively pumping at the time measurements were made.”

- b) What about the baseline water levels? It is confusing that the report discusses quarterly level measurement details in intro paragraph first before the baseline.

Response: The text will be revised with the correct sequence of sampling events.

16. Section 3.2 – Paragraph 2 - “GMZ monitoring investigative samples”. What does ‘investigative’ mean, as we are currently in LTRA?

Response: The text in Section 2.2 which discusses Sampling Methods will be revised as follows: “Investigative samples are defined as an independent sample collected from a specific sampling location that is not designated for quality control purposes.” The text of Section 3.2 will not require modification as the definition of “investigative” will have been presented in Section 2.2.

17. Why weren't the water levels (assuming they were measured) and total VOCs from the extraction wells included in the contours with the monitoring wells?

Response: Starting with the 2021 GMZ Report, water levels and contaminant concentrations for the extraction wells will be added to the figures.

18. Interpretations and Conclusions

- a) Groundwater Flow (Section 3.1, last paragraph on page) – The overall trend is NW as shown in Figs. 5 - 7. What about likely flow toward the surface creek to the north of this area that seems to be influencing the local groundwater flow here (this can also be interpreted in the contour maps)?

Response: Localized interaction between groundwater and the drainage ditch was established in the OU2 ROD. Although this localized flow may exist, groundwater flow at Area 7 in the unconsolidated and underlying carbonate aquifer is part of a more regional flow regime toward the Rock River and its underlying buried river valley as evidenced by the configuration of the site plume.

- b) Seasonal variation (Section 4.1 2nd paragraph) – what evidence do we have or that has been presented that describes the seasonal variation of the gradient of this area.

Response: The text will be revised to remove the word "seasonal".

- c) Aquifers/Contaminants/Extraction System - It is difficult to reconcile the interpretations without understanding the number of aquifers that exist in this area and what their extent/continuity are (CSM comment above). Also, it is beneficial to include cross sections in the report to understand why some areas have one well and other areas have well clusters, and to potentially include a 3D diagram of aquifers of the multiple N-S and E-W cross sections.

Response: The 2019-2020 GMZ Report has been revised to include this information.

- d) The treatment system is containing VOCs in the upper portion of the aquifer, resulting in the decreased concentrations in the shallow well of this nest." – Seems unlikely that the extraction system has much effect on the concentration of the VOCs yet (only about 1 year in) at the MW-103 cluster about 1,500 ft downgradient of the extraction system. What is the estimated groundwater flow velocity here? What is the reason we are saying that the VOCs are contained in the upper portion of the aquifer (does that mean upper portion of the uppermost aquifer or the uppermost aquifer)? Containment of the VOCs to the upper aquifer would mean that there is more VOCs there. Or do we mean removal is confined to the upper aquifer? In either case, the concluding statement seems speculative with not much evidence currently to back up the concluding statement.

Response: The first sentence of this paragraph states that the well nest "may have" been impacted by operation of the treatment system. The last sentence, which attempts to conclusively link the decreased concentrations to operation of the treatment system, will be deleted.

- e) "...three additional monitoring wells within the GMZ with consistently low and non-detect levels of VOCs during the first year of monitoring are MW-147, MW-148, and MW-149. These wells were not influenced by the extraction well pumping" - Wells with low

VOC levels doesn't mean that the extraction wells had no influence on them. These wells were not influenced by the could be along the flow path of groundwater that has had little interaction with contaminated soils.

Response: All three monitoring wells listed are screened along groundwater flow paths that have had little interaction with contaminated soils. The statement linking the low concentrations in these wells to operation of the treatment system will be removed.

- f) SW/GW relation – This relation could be better defined. Unless there's another geologic reason to show otherwise (which hasn't been described in this report), the aquifers are likely interacting with the SW. Historical Google Earth imagery appears to show water in the creek at all times of the year, however the topographic map shows the creek as intermittent. The report's potentiometric contours appear to largely ignore the creek that is partially contained within the GMZ. The surface water appears to have a hydrologic connection to GW, as the land-surface elevation of ~782 ft near the creek (from Google Earth image below) seems to coincide with GW elevation 782.93 in MW105A at approximately the same time, March 26, 2019 vs April 7, 2019. For Spring 2019, the data appear to indicate that the creek is acting as a discharge zone for GW. It would be beneficial to have multiple water-surface elevations on the creek (and the creek bed) throughout the reach extending from upstream of the northeast corner of the GMZ to a point downstream of the creek at MW-133, tying GW potentiometric surface to the SW system. It appears, locally at least, that GW supports flow in this creek and probably at least some of the flow in the 'upper aquifer' and maybe some of the flow in the 'lower aquifer' discharges to the creek. Also, Contours in June and September are lower than in March but could easily be interpreted to be flowing toward the creek on the north side of the GMZ and west of the GMZ, even at a lower GW elevation. Has the creek downstream of the GMZ been sampled for VOCs?

Response: Site-related contamination was detected in surface water samples collected from the ditch both upstream and adjacent to the site during the OU3 RI and was deemed inconclusive. The OU3 ROD identifies this as a data gap and specifies that a more in-depth analysis of ecological risk at Area 7 should be conducted during the RD. The matter was subsequently postponed during the Area 7 RD phase, but Illinois EPA agrees that it is an appropriate time to revisit the issue.

19. Figures and Tables

- a) Figure 1 – Include SE Rockford Plume (1995, 2012); Indicate SA 4 is delisted in legend.

Response: The figure will be revised for the 2019-2020 annual GMZ report.

- b) Figure 2 – Is the excavation area the 2011 limited hot spot soil excavation. If so, label it as such

Response: The figure will be revised for the 2019-2020 annual GMZ report.

- c) Figure 3 – Are City wells on here? Please make distinguishable on figure and legend.

Response: The figure will be revised for the 2019-2020 annual GMZ report.

- d) Figures 5 – 7 – Include the location of the old creek channel (the probable source area for the COCs stated in the report) on the potentiometric; Include water levels in the extraction wells contoured with the monitoring wells (first – third quarterly events).

Response: *The figures will be revised for the 2019-2020 annual GMZ report to include the old creek channel; however, water levels for extraction wells were not measured for this first year of monitoring and cannot be included in this report. Water levels for extraction wells will be measured going forward starting with the December 2021 sampling event and will be included in the 2021 report.*

- e) Figures 5 – 7 – Outside the confines of the data, it appears that the potentiometric contours are unconstrained by data points in a large area (outside the red lines shown on the image below). These contours should be removed or at the very least dashed where they are approximately located; Surface-water elevations should be measured on the creek and the contours tied into the creek elevations on the north side (creek is within the GMZ); Contours on the south side (outside the red bounded polygon) should be removed, since there is no data to constrain their position.

Response: *The figures will be revised for the 2019-2020 annual GMZ report to clarify the confidence level of water level elevation contours. Although the drainage ditch may have a localized impact on groundwater flow along the northern edge of Area 7, groundwater flow at Area 7 is part of a more regional flow regime toward the Rock River as mentioned in the response to comment 18a. Illinois EPA will evaluate adding additional existing monitoring well nests located north and northwest of Area 7 to the water level monitoring network to provide better coverage along the northern edge of the area.*

- f) Figures 8 – 11 – Add the old creek channel and extraction wells to the figures to help interpret the distribution of the COCs with respect to the probable source area (see below) and their relation to the extraction wells; Remove or dash contour extents that are unconstrained by data points; One *may* be able to constrain the upgradient concentration contours to the probable extent of the source area rather than to simply interpolate the data between known points, which ultimately makes the contaminant extent extend *probably* too far upgradient (east).

Response: *The figures will be revised for the 2019-2020 annual GMZ report.*

- g) Figure 11 – Contours do not honor the presumably “0” value of MW-145. The well is shown having VOCs not being detected (ND), but the well plots between the 4 and 5,000 total VOC contour (see below); Contours shown south and west of the line connecting MW-103 and MW-144 are unconstrained by data points and should be removed.

Response: *The figure will be revised for the 2019-2020 annual GMZ report.*

- h) Table 1 - Should indicate NS-dry; NS-other; particularly if this table will continue to be expanded upon in future reports with future year's information - understanding the difference between dry years and mechanical issues is germane.

Response: *The table will be revised for the 2019-2020 annual GMZ report.*

- i) Table 2 – Add well screen depths to table.

Response: *The table will be revised for the 2019-2020 annual GMZ report.*

- j) Table 4 - 1,4 dioxane does not have an RG. Maybe rename this column as "criteria" and detail in notes that all but 1,4Dx are ROD RG and 1,4 Dx is state criteria.; There is no * in Table 4, but it is in the legend.

Response: *The table will be revised for the 2019-2020 annual GMZ report to clarify that the criteria for 1,4-dioxane is based on the Illinois Class I aquifer standard.*

- k) Tables 5a, 5b - Please ensure these tables are footnoted to indicate the different analyte lists/blanks in tables, otherwise it could be interpreted they were not sampled or there were errors in lab. This will be important as more years of sample information is added to tables.

Response: *The information regarding the different analyte lists is explained in the text and will be added to the tables for the 2019-2020 annual GMZ report.*